UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,584	12/27/2001	Kenji Yamagami	36992.00088 (HAL 197)	9186

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EXAMINER
LE, DEBBIE M

ART UNIT	PAPER NUMBER
2168	

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/033,584	YAMAGAMI, KENJI
	Examiner	Art Unit	
	DEBBIE M. LE	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 October 2005</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 16-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicants' arguments filed on 10/3/05. Claims 1-13 and 16-19 are pending for examinations.

Amending to the title of the invention by Applicants has been acknowledged and accepted.

The rejection under 35 U.S.C 101 to claims 9, 12, 16 and 18, non-statutory subject matter, has been removed with respect to Applicants amended claims 9, 12, 16 and 18.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-13, 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by

Ofek (US Patent 6,654,752 B2).

As per claim 1, Ofek discloses **a method of backup** as replicating copy of data

set (col. 20, line 9) **and restore procedure** as restore command (col. 23, line 51) **using**

a first storage subsystem as a first data storage (Fig. 1, # 42, col. 8, lines 44-45) **and**

second storage subsystem as a second data storage (Fig. 1, #16, col. 8, lines 45-46)

which are connected to each other via a path as a communication link (Fig.1, # 12),

the first storage subsystem connected to a first host as the data storage device 42

connects to a remote host system 40 via a channel director 44 (Fig. 1, # 40, # 44, col. 8,

lines 47-48), **the second storage subsystem connected to a second host** as data

storage device 16 connects to a local host system 13 via a channel director 17 (Fig. 1, #

13, # 17, col. 8, lines 13-17), the method comprising the steps of:

performing a backup procedure comprising the steps of as mirroring

operations (col. 10, line 63):

providing a first logical volume in the first storage subsystem as a data

storage device 336 resides on the remote system 11 (Fig. 20, #336, #11) **and**

a second logical volume and a third logical volume in the second storage

subsystem as a data storage device 333 (as a second logical volume) and a data

storage 332 (as a third logical volume) resides on a local system 10 (Fig. 20, # 10, #333

and #332),

the second logical volume being a copied logical volume of the first logical volume a second data storage facility be separates from a first storage facility, mirrors the data in the first data storage facility (abstract, lines 5-7),

the first and second logical volumes being in sync state as the second data storage (Fig. 20, local system 10) is operating normally and is synchronized to the first data storage (Fig. 20, remote system 11), as mirrors the data in the first data storage (abstract, lines 5-7, col. 9, lines 51-53),

the third logical volume being a copied logical volume of the second logical volume as the BCV device 226 as a mirror to the devices 224 and 225 (col. 22, line 52),

the second and third logical volumes being in sync state as the BCV device assigns to each host device that will operate as a mirror synchronized to the data storage devices 224 and 225 (Figs. 8-9, col. 16, lines 32-33, col. 17, lines 14-18, col. 18, lines 9-14, 55-59); and

splitting the second logical volume and the third logical volume by a command from the first storage subsystem as a command to split HOST 220 and the storage unit 223 which comprising two disk volumes 224 and 225 and the third storage volume 226 (see Fig. 13, col. 16, lines 64-67, col. 17, lines 12-13); and

performing a restore procedure comprising the steps of as restore commands (col. 22, line 50):

mounting the third logical volume to the second host as the M1 and M3 or BCV 332 are located on the same LOCAL SYSTEM 10, and the LOCAL SYSTEM 10 communicates to the HOST SYSTEM 13 via a path, that is the channel director, either

the M1 and M3 or BCV 332 needs to communicate with the HOST SYSTEM 13, they

must pass through by the LOCAL SYSTEM 10 using the channel director (Fig. 20);

reading, at the second host, a file to be restored from the third volume as

while the BCV device 226 has a valid copy, but the mirror devices 224 and 225 does not

contain a valid copy of BCV device 226 (col. 22, lines 54-59),

writing, at the second host, the file to the second volume as the RESTORE

command restores the data from the BCV device 226 to the mirror devices 224 and 225

(col. 22, lines 50-60),

re-synchronizing the first volume with the second volume a second data

storage facility be separates from a first storage facility, mirrors the data in the first data

storage facility (abstract, lines 5-7). Once completion of the operations, the second data

storage facility can reconnect with and synchronizes with the first data storage facility

thereby to reestablished the mirroring operation (abstract, last 3 lines, Fig. 15).

As per claim 2, Ofek teaches wherein performing a restore procedure further

comprises: recovering a database onto the first volume, if a database application is

being run on the first host (as an application of updating a database stored in a single

host volume A, col. 16, lines 55-63).

As per claim 3, Ofek teaches wherein re-synchronizing the first volume with the

second volume further comprises: determining from a pending data bitmap data on the

second volume to be copied to the primary volume (as the M3 bits positions in the track

status block for the mirror devices M1 and M2 defined invalid block, this merger

identifies only those tracks that need to be updated or refreshed to minimize the number

of transfers needed to reestablish synchronism (Figs. 6-7, col. 13, lines 23-30, col. 21,

lines 60-67, col. 22, lines 1-9).

As per claim 4, Ofek teaches marking write data arriving after the command in a

pending data bitmap, thereby tracking which data has been modified (as altering tracks

on the M1 and M2 mirror devices marks the corresponding tracks bit position to a valid

state of the M1 and M2 mirror devices 224 and 225, col. 20, lines 7-16, col. 24, lines 17-

54).

As per claim 5, Ofek teaches wherein the command comprises identities of one

or more files to be restored from the third volume and written to the second volume, and

wherein reading, at the second host, a file to be restored from the third volume and

writing, at the second host, the file to the second volume, further comprises: reading

exclusively the files specified in the command from the third volume and writing the files

so read to the second volume (as receiving the reestablish request and all write

pendings to the BCV are set to be invalid) (col. 21, lines 57-58). It would be inherent

that the BCV device (as "the third volume") is allowed to be "reading exclusively"

because only "all write pendings to the BCV are sets to be invalid".

As per claim 6, Ofek discloses a method, comprising:

receiving an indication of files to be restored as mirror devices 224 and 225

does not contain a valid copy of BCV device 226 while a BCV device 226 has a valid

copy (Fig. 17, col. 22, lines 54-59);

determining whether the files to be restored comprise contents of an entire

volume as restore command restores all data on the BCV device 226 to the mirror

devices 224 and 225 (col. 22, lines 51-52), and if so:

splitting remote mirrors existing between production volumes and backup

volumes as a command to split HOST 220 and the storage unit 223 which comprising

two disk volumes 224 and 225 and the third storage volume 226 (see Fig. 13, col. 16,

lines 64-67, col. 17, lines 12-13);

resynchronizing local mirrors existing between the backup volumes and

volumes holding data copied from the backup volumes at least one of the

volumes holding data copied from the at least one backup volume being located

in the same storage subsystem as reconnects the BCV 332 to 224 and 225 devices

to synchronize the altered tracks (col. 21, lines 29-30) while the BCV device 226 has a

valid copy, but the mirror devices 224 and 225 does not contain a valid copy of BCV

device 226 (col. 22, lines 54-59);

resynchronizing remote mirrors for the production volumes and the backup

volumes a second data storage facility be separates from a first storage facility, mirrors

the data in the first data storage facility (abstract, lines 5-7). Once completion of the

operations, the second data storage facility can reconnect with and synchronizes with

the first data storage facility thereby to reestablished the mirroring operation (abstract, last 3 lines, Fig. 15).

As per claim 7, Ofek teaches wherein resynchronizing local mirrors existing between the backup volumes and volumes holding data copied from the backup volumes comprises:

comparing a pending bitmap for the backup volume with a pending bitmap for the volume holding data copied from the backup volume to determine a set of differential data (as verify command that verifies any particular the local and the BCV devices, col. 25, lines 40-42, 60-64, col. 24, lines 43-53); and

copying the differential data from the volume holding data copied from the backup volume to the backup volume (as the M3 bits positions in the track status block for the mirror devices M1 and M2 defined invalid block, this merger identifies only those tracks that need to be updated or refreshed to minimize the number of transfers needed to reestablish synchronism) (Fig. 17, col. 21, lines 60-67, col. 22, lines 1-9).

As per claim 8, Ofek teaches wherein resynchronizing remote mirrors for the production volumes and the backup volumes comprises:

comparing a pending bitmap for the production volume with a pending bitmap for the backup volume to determine a set of differential data (as verify command that verifies any particular the local and remote mirrors is in synchronization with each other (col. 25, lines 40-42, col. 26, lines 1-45); and

copying the differential data from the backup volume to the production volume

(as the M3 bits positions in the track status block for the mirror devices M1 and M2

defined invalid block, this merger identifies only those tracks that need to be updated or

refreshed to minimize the number of transfers needed to reestablish synchronism) (Fig.

17, col. 21, lines 60-67, col. 22, lines 1-9).

As per claim 9, Ofek discloses a processor-based apparatus, comprising:

means for receiving an indication of files to be restored as mirror devices

224 and 225 does not contain a valid copy of BCV device 226 while a BCV device 226

has a valid copy (col. 22, lines 54-59);

means for determining whether the files to restore comprise contents of an

entire volume as restore command restores all data on the BCV device 226 to the

mirror devices 224 and 225 (col. 22, lines 51-52);

means for splitting remote mirrors existing between production volumes

and backup volumes as a command to split HOST 220 and the storage unit 223 which

comprising two disk volumes 224 and 225 and the third storage volume 226 (see Fig.

13, col. 16, lines 64-67, col. 17, lines 12-13);

means for resynchronizing local mirrors existing between the backup

volumes and volumes holding data copied from the backup volumes, at least one

of the backup volumes and at least one of the volumes holding data copied from

the at least one backup volume being located in the same storage subsystem as

reconnects the BCV 332 to 224 and 225 devices to synchronize the altered tracks (col.

21, lines 29-30) while the BCV device 226 has a valid copy, but the mirror devices 224

and 225 does not contain a valid copy of BCV device 226 (col. 22, lines 54-59);

and

means for resynchronizing remote mirrors for the production volumes and

the backup volumes a second data storage facility be separates from a first storage

facility, mirrors the data in the first data storage facility (abstract, lines 5-7). Once

completion of the operations, the second data storage facility can reconnect with and

synchronizes with the first data storage facility thereby to reestablished the mirroring

operation (abstract, last 3 lines, Fig. 15).

As per claim 10, Ofek discloses method of restoring a file to a first storage

subsystem connected to a first host as the data storage device 42 connects to a

remote host system 40 via a channel director 44 (Fig. 1, # 40, # 44, col. 8, lines 47-48)

from a second storage subsystem connected to a second host as data storage

device 16 connects to a local host system 13 via a channel director 17 (Fig. 1, # 13, #

17, col. 8, lines 13-17), **in accordance with a request from the first host, wherein:**

the first storage subsystem and second storage subsystem are connected

to each other via a path as a communication link remote host 11 and local system

10(Fig.1, # 12), **the first storage subsystem stores a first logical volume** as a first

data storage (Fig. 1, # 42, col. 8, lines 44-45), **the second storage subsystem stores**

a second logical volume as a second data storage (Fig. 1, #16, col. 8, lines 45-46)

and a third logical volume as a BCV device 332 (Fig. 20), **the second logical**

volume being a copied logical volume of the first logical volume a second data storage facility be separates from a first storage facility, mirrors the data in the first data storage facility (abstract, lines 5-7), **the third logical volume being a copied logical volume of the second logical volume** as the BCV device 226 as a mirror to the devices 224 and 225 (col. 22, line 52), **the first logical volume and the second logical volume being in a non-sync state** as a command to split HOST 220 and the storage unit 223 which comprising two disk volumes 224 and 225 and the third storage volume 226 (see Fig. 13, col. 16, lines 64-67, col. 17, lines 12-13), **the second and third logical volumes being in sync state** as BCV 332 being reconnected to 224 and 225 devices to synchronize the altered tracks (col. 21, lines 29-30),

    the method comprising:

    mounting the third logical volume to the second host as the M1 and M3 or BCV 332 are located on the same LOCAL SYSTEM 10, and the LOCAL SYSTEM 10 communicates to the HOST SYSTEM 13 via a path, that is the channel director, either the M1 and M3 or BCV 332 needs to communicate with the HOST SYSTEM 13, they must pass through by the LOCAL SYSTEM 10 using the channel director (Fig. 20),

    reading, at the second host, a file to be restored from the third volume as while the BCV device 226 has a valid copy, but the mirror devices 224 and 225 does not contain a valid copy of BCV device 226 (col. 22, lines 54-59) **and**

    writing, at the second host, the file to the second volume as the RESTORE command restores the data from the BCV device 226 to the mirror devices 224 and 225 (col. 22, lines 50-60), **and**

re-synchronizing the first volume with the second volume a second data

storage facility be separates from a first storage facility, mirrors the data in the first data

storage facility (abstract, lines 5-7). Once completion of the operations, the second data

storage facility can reconnect with and synchronizes with the first data storage facility

thereby to reestablished the mirroring operation (abstract, last 3 lines, Fig. 15).

As per claim 11, Ofek teaches mounting the third logical volume to the second

host comprises: **responsive to a command from the first storage subsystem,**

splitting the sync state between the second logical volume and the third logical

volume as a command to split HOST 220 and the storage unit 223 which comprising

two disk volumes 224 and 225 and the third storage volume 226 (see Fig. 13, col. 16,

lines 64-67, col. 17, lines 12-13).

As per claim 12, Ofek discloses a processor-based storage subsystem,

comprising:

    a first logical volume as M1 and M3 mirror devices 224 and 225 (Fig. 20),

    a second logical volume as BCV 332 (Fig. 20), **the first logical volume and**

the second logical volume being located in the same storage subsystem as the

M1 and M3 and BCV 332 are located on the same LOCAL SYSTEM 10 (Fig. 20), **and**

    an interface to a path as a communication link (Fig.1, # 12), **providing**

connectivity to a primary storage subsystem as remote system 11 (Fig. 20),

    the second logical volume being a copied logical volume of the first logical

volume a second data storage facility be separates from a first storage facility, mirrors

the data in the first data storage facility (abstract, lines 5-7),

      the first logical volume operative to be selectively placed into one of a sync

state and a non-sync state with a logical volume in the primary storage

subsystem as a command to split HOST 220 and the storage unit 223 which

comprising two disk volumes 224 and 225 and the third storage volume 226 (see Fig.

13, col. 16, lines 64-67, col. 17, lines 12-13),

      the first logical volume and second logical volume being in sync state as

BCV 332 being reconnected to 224 and 225 devices to synchronize the altered tracks

(col. 21, lines 29-30),

      the second logical volume operative to permit host access to read files to

be restored from the second logical volume as while the BCV device 226 has a valid

copy, but the mirror devices 224 and 225 does not contain a valid copy of BCV device

226 (col. 22, lines 54-59), the LOCAL SYSTEM 10 communicates to the HOST

SYSTEM 13 via a path, that is the channel director (Fig. 20) **and write the files to be**

restored to the first logical volume responsive to a restore command as the

RESTORE command could then restore the data from the BCV device 226 to the mirror

devices 224 and 225 (col. 22, lines 50-60), **and**

      the second storage subsystem operative to establish a sync state between

the first logical volume and the second logical volume as BCV 332 being

reconnected to 224 and 225 devices to synchronize the altered tracks (col. 21, lines 29-

30).

As per claim 13, Ofek discloses a computer program product, comprising:

code for receiving an indication of files to be restored as mirror devices 224

and 225 does not contain a valid copy of BCV device 226 while a BCV device 226 has a

valid copy (col. 22, lines 54-59);

code for determining whether the files to be restored comprise contents of

an entire volume as restore command restores all data on the BCV device 226 to the

mirror devices 224 and 225 (col. 22, lines 51-52), **and if so invoking a plurality of**

codes, comprising:

code for splitting remote mirrors existing between production volumes and

backup volumes as a command to split HOST 220 and the storage unit 223 which

comprising two disk volumes 224 and 225 and the third storage volume 226 (see Fig.

13, col. 16, lines 64-67, col. 17, lines 12-13);

code for resynchronizing local mirrors existing between the backup

volumes and volumes holding data copied from the backup volumes, at least one

of the backup volumes and at least one of the volumes holding data copied from

the at least one backup volume being located in the same storage subsystem as

reconnects the BCV 332 to 224 and 225 devices to synchronize the altered tracks (col.

21, lines 29-30) while the BCV device 226 has a valid copy, but the mirror devices 224

and 225 does not contain a valid copy of BCV device 226 (col. 22, lines 54-59);

code for resynchronizing remote mirrors for the production volumes and

the backup volumes a second data storage facility be separates from a first storage

facility, mirrors the data in the first data storage facility (abstract, lines 5-7). Once

completion of the operations, the second data storage facility can reconnect with and

synchronizes with the first data storage facility thereby to reestablished the mirroring

operation (abstract, last 3 lines, Fig. 15); **and**

a computer readable storage medium that holds the codes as performing

backup operations with the execution of applications programs in a computer system

(col. 3, lines 20-24, col. 7, lines 57-64).

As per claim 16, Ofek discloses a processor-based apparatus, comprising:

Means for receiving a command as the BCV device 226 receives a split

command or request (Fig. 13, col. 19, lines 9-10);

Means for splitting a sync state existing between a second storage means

and a third storage means as the BVC device 226 receives the split command (col.

19, lines 9-10) and its mirror operation is discontinued by setting the device to a not .

ready state (col. 19, lines 20-21), **the second storage means and the third storage**

means being located in the same storage subsystem as the M1 and M3 and BCV

332 are located on the same LOCAL SYSTEM 10 (Fig. 20);

means for making information on the third storage means available for

reading as BCV 332 being reconnected to 224 and 225 devices to synchronize the

altered tracks (col. 21, lines 29-30);

means for reading a file to be restored from the third storage means as while the BCV device 226 has a valid copy, but the mirror devices 224 and 225 does not contain a valid copy of BCV device 226 (col. 22, lines 54-59);

means for writing the file to the second storage means as the RESTORE command restores the data from the BCV device 226 to the mirror devices 224 and 225 (col. 22, lines 50-60); **and**

means for re-synchronizing the second storage means with a first storage means a second data storage facility be separates from a first storage facility, mirrors the data in the first data storage facility (abstract, lines 5-7). Once completion of the operations, the second data storage facility can reconnect with and synchronizes with the first data storage facility thereby to reestablished the mirroring operation (abstract, last 3 lines, Fig. 15).

As per claim 17, Ofek teaches wherein means for making information on the third storage means available for reading further comprises means for **mounting the third storage means to a means for processing information stored by the third storage means** as the M1 and M3 or BCV 332 are located on the same LOCAL SYSTEM 10, and the LOCAL SYSTEM 10 communicates to the HOST SYSTEM 13 via a path, that is the channel director, BCV 332 needs to communicate with the HOST SYSTEM 13, it must pass through by the LOCAL SYSTEM 10 using the channel director (Fig. 20).

As per claim 18, Ofek discloses a computer program product, comprising:

code for receiving a command as the BCV device 226 receives a split

command or request (Fig. 13, col. 19, lines 9-10);

code for splitting a sync state existing between a second storage unit and a

third storage unit as the BVC device 226 receives the split command (col. 19, lines 9-

10) and its mirror operation is discontinued by setting the device to a not ready state

(col. 19, lines 20-21), **the second storage unit and the third storage unit being**

located in the same storage subsystem as the M1 and M3 and BCV 332 are located

on the same LOCAL SYSTEM 10 (Fig. 20);

code for making information on the third storage unit available for reading

as BCV 332 being reconnected to 224 and 225 devices to synchronize the altered

tracks (col. 21, lines 29-30);

code for reading a file to be restored from the third storage unit as while the

BCV device 226 has a valid copy, but the mirror devices 224 and 225 does not contain

a valid copy of BCV device 226 (col. 22, lines 54-59);

code for writing the file to the second storage unit as the RESTORE

command restores the data from the BCV device 226 to the mirror devices 224 and 225

(col. 22, lines 50-60);

code for re-synchronizing the second storage unit with a first storage unit a

second data storage facility be separates from a first storage facility, mirrors the data in

the first data storage facility (abstract, lines 5-7). Once completion of the operations, the

second data storage facility can reconnect with and synchronizes with the first data

storage facility thereby to reestablished the mirroring operation (abstract, last 3 lines,

Fig. 15); **and**

a computer-readable storage medium that holds the codes as performing

backup operations with the execution of applications programs in a computer system

(col. 3, lines 20-24, col. 7, lines 57-64).

As per claim 19, Ofek discloses a system, comprising:

a first storage subsystem connected to a first host as the data storage

device 42 connects to a remote host system 40 via a channel director 44 (Fig. 1, # 40, #

44, col. 8, lines 47-48),

a second storage subsystem connected to a second host as data storage

device 16 connects to a local host system 13 via a channel director 17 (Fig. 1, # 13, #

17, col. 8, lines 13-17), **wherein:**

the first storage subsystem and the second storage subsystem are

connected to each other via a path as a communication link remote host 11 and local

system 10(Fig.1, # 12),

the first storage subsystem stores a first logical volume as a data storage

device 336 resides on the remote system 11 (Fig. 20, #336, #11),

the second storage subsystem stores a second logical volume and a third

logical volume as a data storage device 333 (as a second logical volume) and a data

storage 332 (as a third logical volume) resides on a local system 10 (Fig. 20, # 10, #333

and #332),

the second logical volume being a copied logical volume of the first logical volume a second data storage facility be separates from a first storage facility, mirrors the data in the first data storage facility (abstract, lines 5-7),

the third logical volume being a copied logical volume of the second logical volume as the BCV device 226 as a mirror to the devices 224 and 225 (col. 22, line 52),

the first logical volume and the second logical volume being in a non-sync state as a command to split HOST 220 and the storage unit 223 which comprising two disk volumes 224 and 225 and the third storage volume 226 (see Fig. 13, col. 16, lines 64-67, col. 17, lines 12-13),

the second and third logical volumes being in sync state as BCV 332 being reconnected to 224 and 225 devices to synchronize the altered tracks (col. 21, lines 29-30),

the second storage subsystem operative to mount the third logical volume to the second host responsive to a restore command as the M1 and M3 or BCV 332 are located on the same LOCAL SYSTEM 10, and the LOCAL SYSTEM 10 communicates to the HOST SYSTEM 13 via a path, that is the channel director, either the M1 and M3 or BCV 332 needs to communicate with the HOST SYSTEM 13, they must pass through by the LOCAL SYSTEM 10 using the channel director (Fig. 20),

the host operative to read files to be restored from the third volume as while the BCV device 226 has a valid copy, but the mirror devices 224 and 225 does not contain a valid copy of BCV device 226 (col. 22, lines 54-59) **and**

write the files to be restored to the second volume as the RESTORE

command restores the data from the BCV device 226 to the mirror devices 224 and 225

(col. 22, lines 50-60), **and**

the second storage subsystem operative to establish a sync state between

the first logical volume and the second logical volume a second data storage facility

be separates from a first storage facility, mirrors the data in the first data storage facility

(abstract, lines 5-7). Once completion of the operations, the second data storage facility

can reconnect with and synchronizes with the first data storage facility thereby to

reestablished the mirroring operation (abstract, last 3 lines, Fig. 15).

Response to Arguments

Applicant's arguments filed 10/03/05 have been fully considered but they are not

persuasive.

First, Applicants argue that Ofek fails to disclose the claimed limitation "mounting

the third volume to the second host."

In response, Examiner respectfully disagrees.

Examiner respectfully submits that Ofek discloses, Fig. 20, "second host, second

volume, and third volume" as recited in the instant independent claim 1. That is, "the

second host" is equivalent to Ofek's *the host system* 13, "the second volume" is

equivalent to Ofek's *the mirror devices M1 and M3 or element 333,* and "the third

volume" is equivalent to Ofek's *the BCV 332 (backup device)* (Ofek's Fig. 20

respectively). As seen, the BCV 332 and the mirror devices M1 and M3 reside on the

same storage system "LOCAL SYSTEM 10" and the LOCAL SYSTEM 10 connects the

"HOST SYSTEM 13" by a channel director. The channel director provides

communication between the HOST SYSTEM 13 and the LOCAL SYSTEM 10 (col. 7,

lines 66-67, col. 8, lines 13-16). Because the M1 and M3 or BCV 332 are located on the

same LOCAL SYSTEM 10, and the LOCAL SYSTEM 10 communicates to the HOST

SYSTEM 13 via a path, that is the channel director. Therefore, either the M1 and M3 or

BCV 332 needs to communicate with the HOST SYSTEM 13, they must pass through

by the LOCAL SYSTEM 10 using the channel director.

Accordingly, Ofek discloses "mounting the third volume to the second host."

Next, Applicants argue Ofek fails to disclose method of restoring a file, e.g., a

corrupted or damaged or lost file, to the second logical volume in a backup

subsystem. Applicant stated that the RESTORE command enables full restoration of all

data on the BCV device to the mirror devices 224 and 225.

In response, examiner respectfully disagrees.

Examiner respectfully submits that Ofek discloses if a disk failure or file

corruption event were to occur so that the data sets in both the M1 and M2 mirror

device 224 and 225 were invalid, the RESTORE command could then restore the data

from the BCV device 226 to the mirror devices 224 and 225 (col. 22, lines 50-60). Since

the rejected claimed recited the limitation "a file to be restored", as broadly interpreted,

this limitation can be read as "restore the data from the BCV device", wherein the data

contains in the BCV device would be treated as "a file". Because Ofek discloses the

restore command restores the data from the BCV device to the device 224 and 225,

Examiner submits that the disclosure reads on the limitation.

Accordingly, Ofek discloses "restoring a file from the third volume to the second

volume."

Last, Applicants argue Ofek fails to disclose "re-synchronizing the second logical

volume in the backup subsystem with the first logical volume in the production storage

subsystem."

In response, Examiner respectfully disagrees.

Examiner respectfully submits that Ofek discloses the instant claimed element

"re-synchronizing the first volume with the second volume." Ofek discloses a second

data storage facility be separates from a first storage facility, mirrors the data in the first

data storage facility (abstract, lines 5-7). Once completion of the operations, the second

data storage facility can reconnect with and synchronizes with the first data storage

facility thereby to reestablished the mirroring operation (abstract, last 3 lines, Fig. 15).

According, Ofek discloses "re-synchronizing the first volume with the second

volume" as claimed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DEBBIE M. LE whose telephone number is (571) 272-

4111. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, JEFFREY GAFFIN can be reached on (571) 272-4146. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

DEBBIE M LE
Examiner
Art Unit 2168

Debbie Le

Nov. 27, 2005.